

Research Article**Assessment of percentage of newborns receiving Polio Zero Dose, Delivered at obstetric units of Services Hospital and Jinnah Hospital Lahore**

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ABSTRACT

Objective: To know the percentage of newborns getting polio zero dose.

Design: A descriptive cross sectional epidemiological study was carried out in obstetric units of services hospital Lahore and Jinnah hospital Lahore.

Methodology: This cross-sectional study was conducted in Obstetric units of Services hospital and Jinnah hospital Lahore. The study duration was one month (1st -31st July 2014). A prestructured questionnaire was used for the purpose of collecting data and consent was taken on the form beforehand.

Results: In this research 75 cases were studied from Obstetric Units of Services Hospital Lahore and Jinnah Hospital Lahore 50.7% of the studied cases were administered zero dose polio while 49.3% were not administered zero dose polio. Of the 50 cases of female newborns studied, 50% (25) were administered zero dose polio and 50% (25) were not administered zero dose polio while of the 25 male newborn cases studied, 52% (13) were administered and 48% (12) were not administered zero dose polio. This study also showed that majority of the newborns, under study, were of the female gender and their ages ranged from 1 day to 4 days. The study showed that out of the 50.7% who received zero dose polio, 27.7% of newborns received it on the 1st or 2nd day of their birth while the remaining 23% of the 50.7% newborns received their polio zero dose on 3rd or 4th day of their birth. The study also clearly shows that 8% of the newborns had a family history of polio.

Conclusion: Around half of the population in the vicinity of these hospitals do not receive zero dose polio. Either they are not aware of zero dose polio or they simply do not opt for it because of their social beliefs.

Keywords: Polio, obstetric, population, hospital, vaccine, new born.

INTRODUCTION

Poliomyelitis, is an acute, viral infectious disease, it is highly contagious spread via the fecal-oral (intestinal source) and the oral-oral (oropharyngeal source) routes.[1]. The term derives from the ancient greek *poliós*, meaning "grey", *myelós*, referring to the grey matter of the spinal cord, and the suffix *-itis*, which denotes inflammation.,[2] i.e., inflammation of the spinal cords grey matter. In endemic areas, wild polioviruses can infect virtually the entire human population.[3] The incubation period is usually six to 20 days, with a maximum range of three to

35 days.[4] Factors that increase the risk of polio infection or affect the severity of the disease include immune deficiency, [8] malnutrition, [5] Affected individuals can exhibit a range of symptoms if the virus enters the blood stream although approximately 90% of polio infections cause no symptoms at all. In about 1% of cases, the virus enters the central nervous system, preferentially infecting and destroying motor neurons, leading to muscle weakness and acute flaccid paralysis. Different types of paralysis may occur, depending on the

nerves involved. Polio vaccines developed in the 1950s have reduced the global number of polio cases per year. From many hundreds of thousands to under a thousand today [6].

Two types of vaccine are used throughout the world to combat polio. Both types induce immunity to polio, efficiently blocking person-to-person transmission of wild poliovirus, thereby protecting both individual vaccine recipients and the wider community (so-called herd immunity). [7] Subsequently, Albert Sabin developed another live, oral polio vaccine (opv). A single dose of Sabin's oral polio vaccine produces immunity to all three poliovirus serotypes in about 50% of recipients. Licensed in 1962, [8] it rapidly became the only polio vaccine used worldwide. [9] Because opv is inexpensive, easy to administer, and produces excellent immunity in the intestine, it has been the vaccine of choice for controlling poliomyelitis in many countries.

Polio is now rare in the western world but still endemic in south Asia and Africa, particularly Pakistan and Nigeria respectively. Following the widespread use of poliovirus vaccine in the mid-1950s, the incidence of poliomyelitis declined dramatically in many industrialized countries. A global effort to eradicate polio began in 1988, led by the World Health Organization, UNICEF, and the Rotary Foundation. [10] These efforts have reduced the number of annual diagnosed cases by 99%; from an estimated 350,000 cases in 1988 to a low of 483 cases in 2001, after which it has remained at a level of about 1,000 cases per year (1,606 in 2009). In 2012, cases decreased to 223. A number of eradication milestones have already been reached, and several regions of the world have been certified polio-free. The Americas were declared polio-free in 1994. [12]

MATERIALS AND METHODOLOGY

In 2000 polio was declared to have been officially eliminated in 37 western Pacific countries including China and Australia. Europe was declared polio-free in 2002. On March 27, 2014 the WHO announced the eradication of poliomyelitis in the south-east Asia region. Up to 2013 polio remains endemic in only three

countries: Nigeria, Pakistan, and Afghanistan. [13] As no such study, depicting number of newborns receiving zero dose polio in public sector hospitals has been conducted, so we will try to find out the percentage of newborns receiving zero dose polio vaccine and to advocate the obstetric units to establish vaccination corner [14].

Pakistan is one of only three countries in the world with ongoing wild poliovirus transmission, alongside Afghanistan and Nigeria. In the last stage of polio eradication, Pakistan has made tremendous progress towards poliovirus transmission interruption and eradication [15]. Two years ago, transmission of the wild poliovirus was widespread. In less than 24 months, a reinvigorated programme has been able to first stem the tide of uncontrolled transmission and then tackle the more chronic underlying challenges that have proven obstacles to virus interruption and eradication [16].

The number of children paralysed by the wild poliovirus has dropped progressively from 306 in 2014 to 54 in 2015 to 20 in 2016 and 2 cases in 2017 so far. Eradication efforts have begun to close the immunity gaps and the programme is on track to reaching the goal of interrupting the transmission of polio in Pakistan. To accomplish the eradication of the poliovirus, Pakistan Polio Eradication Programme refocused its goal from "coverage" to "no missed children". This paradigm shift has driven programme operations with very encouraging results. The proportion of children recorded as "missed" during campaigns and remaining unvaccinated after each campaign has declined to approximately 4% in the 2016 low transmission season.

A descriptive cross sectional epidemiological study was carried out in obstetric units of Services Hospital Lahore and Jinnah Hospital Lahore on newborns delivered between July 1st-31st July 2014. Sample size was calculated by using Epi Info software (sample of 75 subjects would be appropriate) and samples were collected on non-probability convenient sampling technique. Ethical clearance & data collection methods using a questionnaire developed in keeping with the study

objectives was used. Epi info and spss computer software were used for entry, compilation analysis of the data.

RESULTS AND DISCUSSION

Table 1. Frequency table of Zero dose polio given to newborns

Valid	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	38	50.7	50.7	50.7
No	37	49.3	49.3	100.0
Total	75	100.0	100.0	

Table 1 is a frequency table which shows that out of a total of 75 subjects, on which research were performed, 38 of them were positive and 37 of them were negative for Zero dose polio administered to newborn i.e 50.7% were administered zero dose polio while the remainder 49.3% were not.

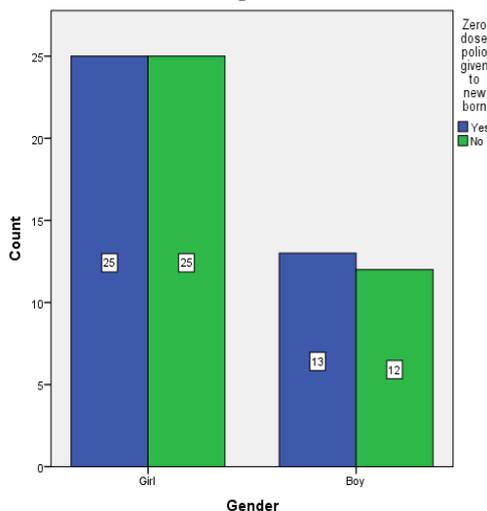


Fig. 1. Cross bar chart showing relation between gender and zero dose polio given to newborn

This is a cross bar chart plotted with gender on x-axis and zero dose polio on y-axis. This chart signifies that of the total 50 subjects of newborn girls, half i.e 50% were administered zero dose polio and the remaining 50% were not. Similarly of the total 25 subjects who were newborn boys, 13 of them were administered zero dose polio while 12 of them were not.

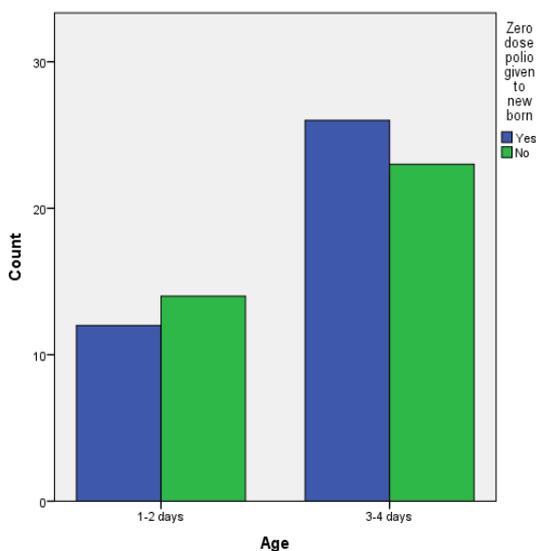


Fig. 2. Crossbar chart relating age with zero dose polio given to newborn

The above mentioned fig. 2.crossbar chart gives us a relationship between the variable of age and zero dose polio of the newborn. It expresses that in the age group of 1-2 days 12 newborns were administered and 14 newborns were not administered zero dose polio respectively. Similarly in the age variable of 3-4 days, 26 newborns were vaccinated and 23 were not.

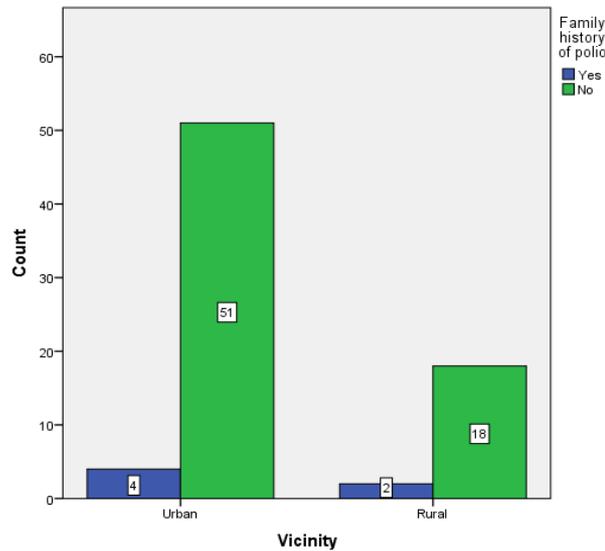


Fig. 3. Relationship between vicinity and family history of polio

Above mentioned is an important crossbar chart with the variable of vicinity plotted along x-axis and family history of polio along y-axis. This gives us an important insight about the history or existing cases of polio in families in relation to the vicinity of the population. Research shows that 7% of the newborns from urban areas have a family history of polio while from rural areas 10% gave a positive family history of polio. We can roughly infer that the high rate of polio in rural areas is due to lack of awareness and education related to polio in that area.

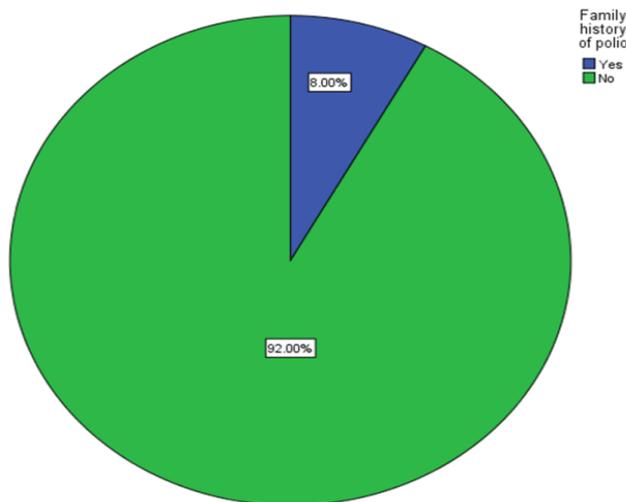


Fig. 4. Pie chart showing the occurrence of family history of polio

Fig.4. shows a pie chart which gives us information about the family history of polio, conducted during the research, in percentage. Out of the total 75 cases studied, 8% had family history of polio somewhere in their immediate

ancestors and 92% were free of any such incidence. In this research 75 cases were studied from Obstetric Units of Services Hospital Lahore and Jinnah Hospital Lahore 50.7% of the studied cases were administered zero dose polio while

49.3% were not administered zero dose polio. Of the 50 cases of female newborns studied, 25 were administered zero dose polio and 25 were not administered zero dose polio while of the 25 male newborn cases studied, 13 were administered and 12 were not administered zero dose polio.

This research was conducted to know the percentage of newborns receiving polio zero dose. This study was based on a time frame of four weeks and a data of 75 subjects (newborns) was collected. Results depict that 50.7% of the newborns received polio zero dose at the obstetric units of Services Hospital & Jinnah hospital Lahore whereas 49.3% were not given polio zero dose. Majority of the newborns, under study, were of the female gender and their age ranged from 1 day to 4 days. The study shows that out of 50.7%, 27.7% of newborns received their polio zero dose on 1st or 2nd day of their birth while the remaining 23% of the 50.7% newborns received their polio zero dose on 3rd or 4th day of their birth. The study also clearly shows that 8% of the newborns had a family history of polio. This relates to the fact that there is increased risk of polio transmission in that family and the lack of awareness of that family about polio vaccination. Also it shows the significance of polio zero dose in that particular newborn who has a high risk of taking up polio virus from his family. In the year 2013, 93 polio cases were reported in Pakistan, which was highest in comparison to the other two countries with the disease i.e. Nigeria and Afghanistan. Upto June 2014, 104 cases have been reported which is tragic figure.

CONCLUSION

Around half of the population in the vicinity of these hospitals do not receive zero dose polio. Either they are not aware of zero dose polio or they simply do not opt for it because of their social beliefs.

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